

**Claims:** It will now be apparent to those skilled in the art that other embodiments, improvements, details, and uses can be made consistent with the letter and spirit of the foregoing disclosure and within the scope of this patent, which is limited only by the following claims, construed in accordance with the patent law, including, the doctrine of equivalents. What I claimed:

1. Viscometer instrument comprising:
  - (a) a rotor which is driven to rotate while contacting with a sample liquid to be measured,
  - (b) means for driving said rotor to rotate,
  - (c) a bob within said rotor,
  - (d) means for directly or indirectly sensing the rotation of said bob.
  - (e) means for suspending said bob comprising:
    - (1) At least two axially disposed sleeves. Said sleeves do not directly contact with each other and they are arranged so that at least one of said sleeves is mounted on a stationary frame, and at least one of the other sleeves directly or indirectly connecting to a portion of said bob, and moves together with said bob,
    - (2) One or more leaf springs that hold said sleeves together. At least some of said leaf springs have their two ends connected to two different said sleeves.
2. The instrument of claim 1 wherein said means for suspending said bob has two coaxial sleeves.
3. The instrument of claim 2 wherein said two coaxial sleeves are cylindrical.
4. The instrument of claim 3 wherein said two coaxial sleeves have same outside diameter.
5. The instrument of claim 3 wherein said two coaxial sleeves have different outside diameter.
6. The instrument of claim 3 wherein said two coaxial sleeves have angular displacement relative to each other when a torque is applied on said bob.
7. The instrument of claim 6 wherein said angular displacement is approximately linear corresponding to said torque that applied on said bob.
8. The instrument of claim 1 wherein a bob shaft is used to connect said bob to said means for suspending said bob.
9. The instrument of claim 1 wherein said means for suspending said bob is mounted away from said sample liquid so that temperature effects and corrosion damage are minimized.
10. The instrument of claim 1 wherein said means for sensing the rotation of said bob is a pair of concentrically mounted electrical stator and rotor.
11. The instrument of claim 1 wherein said means for sensing the rotation of said bob is a strain gauge.

12. The instrument of claim 1 wherein said means for sensing the rotation of said bob is a metal arm and a wire wound conductance sensor.
13. The instrument of claim 1 wherein said means for sensing the rotation of said bob consists of, a member rotating with said bob and a sensor measuring the distance to the said member while not contacting it.